KARNATAKA TEST HOUSE PVT. LTD.

MATERIAL TESTING LABORATORY

778/44, Gokul 1st Stage, 2nd Phase, 8th Cross, Triveni Road,
Yeshwanthpur, Bangalore - 560 054. Tele : 23378383 , 23375326
E-mail : kthblr@gmail.com Webstie : www.karnatakatesthouse.com

Report No. : KTH/DCL/2533-3610/2014-2015 **Date: 05.03.2015**

TEST REPORT ON DENSITY OF COMPACTED LAYER ON DBM & SDBC

Name of the Customer : **M/s. PJB Engineers Pvt. Ltd.,**
143, Rathna Building, 4th Floor,
Richmond Road, Bangalore -560 025.

Name of Project* : Widening Road from Badrappa Layout Signal to Kodigehalli Circle.
Ch: 0.000 to 1500 m, Ward No.08, Yelahanka Zone for BBMP.

Source of Sample : DBM & SDBC Core Samples Extracted by M/s. Karnataka Test House Pvt. Ltd.

Sample Extracted on : 02.03.2015

DENSE BITUMINOUS MACADAM

Sl. No.	Location / Chainage*	Thickness (mm)	Bulk Density (gm/cc)
1.	265 m	50	2.32
2.	475 m	55	2.29
3.	680 m	57	2.30

SEMI DENSE BITUMINOUS CONCRETE

Sl. No.	Location / Chainage*	Thickness (mm)	Bulk Density (gm/cc)
1.	265 m	25	2.38
2.	475 m	30	2.37
3.	680 m	28	2.36

* As furnished by the customer.

For **KARNATAKA TEST HOUSE PVT. LTD.**

(K.B.V.PATHI)
PRINCIPAL ENGINEER

Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

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NABL Accredited Laboratory ISO/IEC 17025

Ref: KTH/DBM/2014-2015 **Date: 14.02.2015**

TEST REPORT ON DENSE BITUMINOUS MACADAM (DBM)

Name of the Customer* : **M/s. PJ.B Engineers Pvt. Ltd.,**
143, Rathna Building, 4th Floor,
Richmond Road, Bangalore-560025

Name of the Work* : Widening of road from Bhadrappa Layout Signal to Kodigehalli circle Ch:0.0mtr to 1500.0mtr, Ward No.8, Yelahanka zone.

Identification* : 0.0m to 250.0m

Date of Laying* : 12.02.2015

Technical Reference : IS 73 :1992 (Reaffirmed-1998) and MORT&H-Specification 4th Revision

a) Gradation for Dense Bituminous Macadam (DBM)

Sl. No	Sieve size mm	% Passing	Specification as per MORT&H (Section 500, Table 500-10) % by wt. passing (Grade 2)	Remarks
1	37.5	100	100	Gradation conform to MORT&H Specification for Grade 2 (Section 500, Table 500-10)
2	26.5	100	90 –100	
3	19	94.7	71-95	
4	13.2	79.3	56-80	
5	9.5	67.4	-	
6	4.75	38.3	38-54	
7	2.36	28.4	28-42	
8	1.18	14.4	-	
9	0.60	10.0	-	
10	0.30	7.2	7-21	
11	0.15	4.3	-	
12	0.075	2.7	2-8	

b) Bitumen Content of Dense Bituminous Macadam (DBM)

Sl. No.	Description	Test Values	Remarks
1	Weight of Bitumen mix	630 grams	Bitumen content satisfies MORT&H Specification Which is minimum of 4.5%
2	Weight of aggregate after extraction of bitumen	600 grams	
3	Weight of Bitumen	30 grams	
4	Bitumen content %	4.76 %	

* As furnished by the customer

For **KARNATAKA TEST HOUSE PVT. LTD.**

(SREENIVAS.C.)
TECHNICAL MANAGER

Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

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NABL Accredited Laboratory ISO/IEC 17025

Report No. : KTH/SDBC/2014-2015 **Date: 14.02.2015**

TEST REPORT ON SEMI DENSE BITUMINOUS CONCRETE (SDBC)

Name of the Customer* : **M/s. PJ.B Engineers Pvt. Ltd.,**
143, Rathna Building, 4th Floor,
Richmond Road, Bangalore-560025

Name of the Work* : Widening of road from Bhadrappa Layout Signal to Kodigehalli circle Ch:0.0mtr to 1500.0mtr, Ward No.8, Yelahanka zone.

Identification* : 0.0m to 250.0m

Date of Laying* : 13.02.2015

Technical Reference : IS 73 :1992 (Reaffirmed-1998) and MORT&H-Specification 4th Revision

a) Gradation for Semi Dense Bituminous Concrete (SDBC)

Sl. No.	Sieve size mm	% Passing	Specification as per MORT&H (Section 500, Table 500-15) % by wt. passing
			Grade-2
1	19	100	-
2	13.2	100	100
3	9.50	98.2	90 – 100
4	4.75	52.0	35 – 51
5	2.36	26.2	24 – 39
6	1.18	16.3	15 – 30
7	0.60	12.7	–
8	0.30	9.3	9 – 19
9	0.15	5.3	–
10	0.075	2.2	3 – 8

b) Bitumen Content of Semi Dense Bituminous Concrete (SDBC)

Sl. No.	Description	Test Values	Remarks
1	Weight of Bitumen mix	938 grams	Bitumen content min 5.0% as per MORT&H Specification
2	Weight of aggregate after extraction of bitumen	888 grams	
3	Weight of Bitumen	50 grams	
4	Bitumen content %	5.33 %	

*As furnished by the customer.

For **KARNATAKA TEST HOUSE PVT. LTD.**

Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

(SREENIVASA.C.)
TECHNICAL MANAGER

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NABL Accredited Laboratory ISO/IEC 17025

Report No. : KTH/SDBC/2014-2015 **Date: 05.12.2014**

TEST REPORT ON SEMI DENSE BITUMINOUS CONCRETE (SDBC)

Name of the Customer* : **M/s. PJ.B Engineers Pvt. Ltd.,**
143, Rathna Building, 4th Floor,
Richmond Road, Bangalore-560025

Name of the Work* : Widening of road from Bhadrappa Layout Signal to Kodigehalli circle Ch:0.0mtr to 1500.0mtr, Ward No.8, Yelahanka zone.

Identification* : 250.0m to 600.0m

Date of Laying* : 04.12.2014

Technical Reference : IS 73 :1992 (Reaffirmed-1998) and MORT&H-Specification 4th Revision

a) Gradation for Semi Dense Bituminous Concrete (SDBC)

Sl. No.	Sieve size mm	% Passing	Specification as per MORT&H (Section 500, Table 500-15) % by wt. passing
			Grade-2
1	19	100	-
2	13.2	100	100
3	9.50	90.4	90 – 100
4	4.75	38.5	35 – 51
5	2.36	26.7	24 – 39
6	1.18	16.3	15 – 30
7	0.60	12.4	–
8	0.30	9.1	9 – 19
9	0.15	6.2	–
10	0.075	3.1	3 – 8

b) Bitumen Content of Semi Dense Bituminous Concrete (SDBC)

Sl. No.	Description	Test Values	Remarks
1	Weight of Bitumen mix	981 grams	Bitumen content min 5.0% as per MORT&H Specification
2	Weight of aggregate after extraction of bitumen	927 grams	
3	Weight of Bitumen	54 grams	
4	Bitumen content %	5.50 %	

*As furnished by the customer.

For **KARNATAKA TEST HOUSE PVT. LTD.**

(SREENIVASA.C.)
TECHNICAL MANAGER

Asst. Executive Engineer
Project Division
Yelahanka Zone

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MATERIAL TESTING LABORATORY

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E-mail : kthblr@gmail.com Website : www.karnatakatesthouse.com

SINCE 1989 Quality Assurance Professionalism 25 Years

NABL Accredited Laboratory ISO/IEC 17025

Ref: KTH/DBM/2014-2015 **Date: 04.12.2014**

TEST REPORT ON DENSE BITUMINOUS MACADAM (DBM)

Name of the Customer* : **M/s. PJ.B Engineers Pvt. Ltd.,**
143, Rathna Building, 4th Floor,
Richmond Road, Bangalore-560025

Name of the Work* : Widening of road from Bhadrappa Layout Signal to Kodigehalli circle Ch:0.0mtr to 1500.0mtr, Ward No.8, Yelahanka zone.

Identification* : 250.0m to 600.0m

Date of Laying* : 03.12.2014

Technical Reference : IS 73 :1992 (Reaffirmed-1998) and MORT&H-Specification 4th Revision

a) Gradation for Dense Bituminous Macadam (DBM)

Sl. No	Sieve size mm	% Passing	Specification as per MORT&H (Section 500, Table 500-10) % by wt. passing (Grade 2)	Remarks
1	37.5	100	100	Gradation conform to MORT&H Specification for Grade 2 (Section 500, Table 500-10)
2	26.5	93.6	90 –100	
3	19	72.6	71-95	
4	13.2	58.7	56-80	
5	9.5	41.4	-	
6	4.75	39.0	38-54	
7	2.36	30.1	28-42	
8	1.18	29.3	-	
9	0.60	16.9	-	
10	0.30	8.2	7-21	
11	0.15	7.3	-	
12	0.075	4.4	2-8	

b) Bitumen Content of Dense Bituminous Macadam (DBM)

Sl. No.	Description	Test Values	Remarks
1	Weight of Bitumen mix	505 grams	Bitumen content satisfies MORT&H Specification Which is minimum of 4.5%
2	Weight of aggregate after extraction of bitumen	482.0 grams	
3	Weight of Bitumen	23.0 grams	
4	Bitumen content %	4.55 %	

* As furnished by the customer

For **KARNATAKA TEST HOUSE PVT. LTD.**

Asst. Executive Engineer
Project Division
Yelahanka Zone

(SREENIVASA.C)
TECHNICAL MANAGER

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MATERIAL TESTING LABORATORY

NABL Accredited Laboratory as per ISO/IEC 17025

Report No.: KTH/WMM/2110-2518/2014-2015 **Date: 05.02.2015**

TEST REPORT ON GRANULAR SUB BASE

Name of the Customer*	:	**M/s. P.J.B Engineers Pvt. Ltd.,** # 143, Rathna Building, 4Th Floor, Richmond Road, Bangalore-560025
Name of the Work*	:	Widening of road from Bhadrappa Layout Signal to Kodigehalli circle Ch:0.0mtr to 1500.0mtr, Ward No.8, Yelahanka zone.
Identification*	:	0.0m to 250.0m
Source of Sample	:	Supplied by the customer.
Sample Received on	:	02.02.2015.
Technical Reference	:	IS : 2720 (Part – 8) 1983 Reaffirmed 2002 IS : 2720 (Part – 29) 1975

Proctor and Field density test results:

Sl. No	Identification	Level	Modified Proctor Density in g/cc	OMC in %	Field Density in g/cc**	FMC in %**	% Compaction
1	CH:50m(L)	-	2.18	5.5	2.15	3.5	98.62
2	CH:150m(R)	-	2.18	5.5	2.17	2.1	99.54
3	CH:240m(L)	-	2.18	5.5	2.18	1.5	100.0

** Sand Replacement method

For **KARNATAKA TEST HOUSE PVT. LTD.**

SREENIVASA.C
TECHNICAL MANAGER

Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

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KARNATAKA TEST HOUSE PVT LTD.

MATERIAL TESTING LABORATORY

NABL Accredited Laboratory as per ISO/IEC 17025

Report No.: KTH/GSB/2110-2518/2014-2015 **Date: 05.02.2015**

TEST REPORT ON GRANULAR SUB BASE

Name of the Customer* : **M/s. PJ.B Engineers Pvt. Ltd.,**
143, Rathna Building, 4Th Floor,
Richmond Road, Bangalore-560025

Name of the Work* : Widening of road from Bhadrappa Layout Signal to Kodigehalli circle Ch:0.0mtr to 1500.0mtr, Ward No.8, Yelahanka zone.

Identification* : 0.0m to 250.0m

Source of Sample : Supplied by the customer.

Sample Received on : 02.02.2015.

Technical Reference : MORT&H Specification (Fourth revision)

SIEVE ANALYSIS

Sl. No.	Sieve size mm	GSB Mix % Passing	Specification as per MORT&H (Section 400, Table 400-1) % by wt. passing			Remarks
			Grading - I	Grading - II	Grading - III	
1.	75	100	100	-	-	Sample confirms to the MORT&H (Section 400, Table 400-1) Grading – 1
2.	53	97.5	80-100	100	-	
3.	26.5	75.2	55-90	70-100	100	
4.	9.5	48.1	35-65	50-80	65-95	
5.	4.75	35.0	25-55	40-65	50-80	
6.	2.36	26.7	20-40	30-50	40-65	
7.	0.425	12.9	10-25	15-25	20-35	
8.	0.075	2.1	3-10	3-10	3-10	

Sl. No.	Test Conducted	Results	Specification as per MORT&H (Section 400, Table 400-11) % by wt. passing
1.	10% Fines Value (kN)	92	50 kN or more.
2.	Water Absorption (%)	0.20	Shall not be more than 2%

* As furnished by the customer.

For **KARNATAKA TEST HOUSE PVT. LTD.**

SREENIVASA.C.
TECHNICAL MANAGER

Asst. Executive Engineer
Project Division
Yelahanka, BBMP
Bangalore

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NABL Accredited Laboratory as per ISO/IEC 17025

NABL Accredited Lab Certificate No.T-0901

Report No.: KTH/GSB/1780-2295/2014-2015 **Date: 27.11.2014**

TEST REPORT ON GRANULAR SUB BASE

Name of the Customer*	:	**M/s. PJ.B Engineers Pvt. Ltd.,** # 143, Rathna Building, 4Th Floor, Richmond Road, Bangalore-560025
Name of the Work*	:	Widening of road from Bhadrappa Layout Signal to Kodigehalli circle Ch:0.0mtr to 1500.0mtr, Ward No.8, Yelahanka zone.
Identification*	:	250.0m to 600.0m
Source of Sample	:	Supplied by the customer.
Sample Received on	:	24.11.2014.
Technical Reference	:	MORT&H Specification (Fourth revision)

SIEVE ANALYSIS

Sl. No.	Sieve size mm	GSB Mix % Passing	Specification as per MORT&H (Section 400, Table 400-1) % by wt. passing			Remarks
			Grading - I	Grading - II	Grading - III	
1.	75	100	100	-	-	Sample confirms to the MORT&H (Section 400, Table 400-1) Grading – I
2.	53	95.2	80-100	100	-	
3.	26.5	66.0	55-90	70-100	100	
4.	9.5	52.9	35-65	50-80	65-95	
5.	4.75	38.4	25-55	40-65	50-80	
6.	2.36	27.1	20-40	30-50	40-65	
7.	0.425	15.0	10-25	15-25	20-35	
8.	0.075	2.5	3-10	3-10	3-10	

Sl. No.	Test Conducted	Results	Specification as per MORT&H (Section 400, Table 400-11) % by wt. passing
1.	10% Fines Value (kN)	88	50 kN or more.
2.	Water Absorption (%)	0.18	Shall not be more than 2%

* As furnished by the customer.

For **KARNATAKA TEST HOUSE PVT. LTD.**

SREENIVASA.C
TECHNICAL MANAGER

Asst. Executive Engineer
Project Division
Bangalore

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NABL Accredited Laboratory as per ISO/IEC 17025

Report No.: KTH/WMM/1780-2295/2014-2015 **Date: 27.11.2014**

TEST REPORT ON GRANULAR SUB BASE

Name of the Customer*	:	**M/s. PJ.B Engineers Pvt. Ltd.,** # 143, Rathna Building, 4Th Floor, Richmond Road, Bangalore-560025
Name of the Work*	:	Widening of road from Bhadrappa Layout Signal to Kodigehalli circle Ch:0.0mtr to 1500.0mtr, Ward No.8, Yelahanka zone.
Identification*	:	0.0m to 250.0m
Source of Sample	:	Supplied by the customer.
Sample Received on	:	24.11.2014.
Technical Reference	:	IS : 2720 (Part – 8) 1983 Reaffirmed 2002 IS : 2720 (Part – 29) 1975

Proctor and Field density test results:

Sl. No	Identification	Level	Modified Proctor Density in g/cc	OMC in %	Field Density in g/cc**	FMC in %**	% Compaction
1	CH:280m	-	2.18	5.5	2.16	2.8	99.08
2	CH:430m	-	2.18	5.5	2.18	3.2	100.0
3	CH:520m	-	2.18	5.5	2.15	2.6	98.62

** Sand Replacement method

For **KARNATAKA TEST HOUSE PVT. LTD.**

SREENIVASA.C.
TECHNICAL MANAGER

Asst. Executive Engineer
Project Division
Yelahanka Zone
Bangalore

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